December 9, 1852.

COLONEL SABINE, R.A., Treas. V.P., in the Chair.

The Chairman announced that the President had appointed the following noblemen and gentlemen Vice-Presidents for the ensuing year:—

The Earl of Enniskillen.	Mr. Gassiot.
Lord Wrottesley.	Mr. Hopkins.
Col. Sabine, R.A.	Dr. Wallich.

Mr. Ward and Dr. Waller were admitted into the Society.

The following papers were read.

1. "An Experimental Inquiry undertaken with the view of ascertaining whether any signs of Current Electricity are manifested in Plants during vegetation." By H. F. Baxter, Esq. Communicated by Thomas Bell, Esq., Sec. R.S. &c. Received August 9, 1852.

In the present communication the author has related the experimental results that he has arrived at, and which tend to show that electric currents exist in the leaves and in the roots or spongioles of plants. Becquerel and Wartmann have already proved that electric currents may be obtained in different parts of vegetables, but the object of the paper is to point out the connection of the currents in the above-named organs with the vital or organic changes which take place in them.

In consequence of the secondary actions which occur at the electrodes some difficulty is experienced in ascertaining the true or normal result in the roots. Combining however the facts obtained by means of the galvanometer with analogical evidence, the author considers that they tend to establish the conclusion, that, during the changes which occur in the leaves and in the roots of plants, current electricity is manifested.

2. "On the relation of Cardioids to Ellipses." By Joseph Jopling, Esq. Communicated by S. H. Christie, Esq., Sec. R.S. Received Oct. 29, 1852.

The object of this communication is to point out the relation of cardioids to ellipses, and that the former as well as the latter are related to and deducible from the cone.

The author remarks that the motions of the common trammel show most beautifully the mechanical relation of ellipses and cardioids, and that they are thus reciprocals of each other; that an ellipse, as is well known, is a *plane section*, or a projection of a plane section of a cone upon any other plane, the limits being the circle and the right line; and a cardioid is also a projection from a cone; the difference being that the cardioid is obtained from a curved section, formed by the intersection of a sphere or other curved solid with a cone.

After referring to properties of the sections of cones by spheres, depending on the magnitude of the vertical angles of the cone, the author states that these and many other new curves, their relations,